CITY OF
SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: EMERGENCY SERVICES COUNCIL   **FROM:** Raymond Riordan

SUBJECT: Radio Amateur Civil Emergency Services (RACES)   **DATE:** December 3, 2018

Approved: _K️H️ Lem_   Date: 3 DECEMBER 2018

RECOMMENDATION

1. Approve the Santa Clara County Radio Amateur Civil Emergency Services (RACES) Mutual Aid Communicators Training Curriculum for local delivery with the San José RACES Operators.

2. Approve the proposed Santa Clara County RACES Mutual Aid Communicators Training Curriculum Training Schedule for San José RACES Operators.

OUTCOME

Approval of the proposed RACES Curriculum and approval of the proposed Training Schedule will allow the City of San José meet the requirements of California Code of Regulations, Title 19: Public Safety Division; Chapter 2: Emergencies and Major Disasters; Subchapter 3: Disaster Service Worker Volunteer Program. This State legislation requires approval of the RACES Training Curriculum and Training Schedule by the Emergency Services Council before training begins in San José.

BACKGROUND

During emergencies, communications are critical between agencies, responders, organizations, and multiple levels of government. When normal local public safety radio, phone and cellular services are affected, alternate communications must be identified and implemented. Formed by a Federal Communications Commission National Charter, the Radio Amateur Civil Emergency Services (RACES) and Amateur Radio Emergency Services (ARES) groups are authorized to establish emergency communications bands, to transmit emergency information. In addition the State of California created an Auxiliary Communications System (ACS) to supplement the RACES/ARES groups.

Fortunately for the City of San José, the RACES/ARES/ACS groups are integrated, essentially to form one effort and are well organized in the City of San José. The RACES/ARES/ACS organization has a long history of support to the City and continues to provide excellent services.

As noted in the previously referenced California Code of Regulations Title 19, the Emergency Services Council is charged with protecting these trained, resourceful, and technically skilled volunteers. By approving the proposed curriculum and training schedule, and registering the individuals as Disaster Service Worker Volunteers in the Communications Category, these registered volunteers are protected from financial loss as a result of injuries sustained while engaged in disaster service activities and to provide immunity from liability for such disaster service worker volunteers while providing disaster service.

ANALYSIS

As stated in the California Code of Regulations, Title 19: Public Safety Division (as previously referenced), the Emergency Services Council is responsible to:
1) Require each person registered as a disaster service worker volunteer to satisfactorily complete a course of training or instruction, including periodic refresher training.
2) Ensure disaster training is approved, documented and supervised, and shall ensure disaster training is commensurate with the duties of the disaster service worker volunteer.

Curriculum:
It is the intent of the City of San José to adopt the Santa Clara County (SCC) RACES Mutual Aid Communicators (MAC) Training Curriculum, with focus on addressing local hazard and response considerations. In addition to the required FEMA IS-100, IS-200, IS-700, IS-800, and SEMS courses, each of the 13 different SCC RACES MAC courses provide additional training in specific areas of communication allowing RACES personnel to be deployed during drills, public service events or real emergency incidents where no two assignments will be exactly alike. See Attachment 1 for the 13-unit SCC RACES Training Curriculum. The adoption of a proposed curriculum addresses both responsibilities listed above.

Training Schedule:
The Disaster Service Worker Volunteer Program (DSWVP) Guidance, managed by the California Office of Emergency Services (CalOES), identified that the Emergency Services Council or DSWVP Administrator must manage training including a pre-authorized schedule of course delivery. Written pre-authorization to conduct training may occur on a one-time, monthly, quarterly, or annual basis provided it is in advance of the activity. It may be documented in different formats including Emergency Services Council meeting minutes, letterhead, or e-mail.

As noted in the DSWVP Guidance, Pre-Authorized Training schedule includes:
- date(s); if unknown, provide month, quarter, etc.
- location; general location can be provided
- name of training/exercise
- objective(s)

- supervisor's name and title; if unknown, indicate training will be supervised
- optional information as may be required by registering agency

The training for the amateur radio groups have been very structured and delivered consistently for years. The program has sufficient instructors to provide a complete list of required courses and ensure the delivery is completed on time at a variety of facilities. Quality trained instructors are immediately available to provide the services required of the curriculum. The City of San José is fortunate to have such a well-rounded program to support the City. For these reasons, the proposed training schedule is very complete with specific dates for delivery.

Please see, **Attachment B, Proposed ARES/RACES/ACS Training Schedule**.

The schedule provides opportunities for the entirety of Santa Clara County ARES/RACES/ACS volunteers who have pre-registered on the scc-ares-races.org website to receive training.

EVALUATION AND FOLLOW-UP

Curriculum:
The proposed RACES Training Curriculum may require updates to include specificity to the Emergency Operations Plan updates, technological innovations, and progression in the emergency management programs. Additional opportunities for involvement with other programs may require updates to the materials or additional instructional units. In addition, at the end of each course delivery an evaluation will take place to help determine updates that may be required.

Training Schedule:
The Disaster Service Worker Volunteer Program Administrator will communicate to the Emergency Services Council any updates to the schedule or major curriculum changes.

COORDINATION

This memo has been coordinated with the City Attorney's Office.

CEQA

According to CEQA Guideline PP17-009 this report is a Staff Report or Informational Memo that involves no approvals of any City action.

/s/
Raymond Riordan
Director, Office of Emergency Management

For questions, please contact Raymond Riordan, Director, Office of Emergency Management, at (408) 794-7055.

Attachment A: Proposed ARES/RACES/ACS Training Curriculum
Attachment B: Proposed ARES/RACES/ACS Training Schedule

Attachment A
PROPOSED ARES/RACES/ACS CURRICULUM

In addition to the FEMA IS-100, IS-200, IS-700, IS-800, and SEMS courses, registered Communications Volunteers complete the following 13 courses come from Santa Clara County (SCC) RACES Mutual Aid Communicators (MAC) Training Curriculum, with focus on addressing local hazard and response considerations.

Antenna Fundamentals and Safety	
Course Description and Materials	
Overview:	This course is covers antenna location and safety concerns when setting up antennas at a site. A basic review of antenna fundamentals is included.
Intended Audience:	Hams with experience in emergency communications who might set up an antenna at an operating site.
Prerequisites:	∀ None
Length:	3 hours
Students should bring:	∀ Copy of course materials ∀ Pen/pencil and pad of paper
Learning Objectives:	At the end of this course, students will be able to: ∀ Effectively choose and connect antennas for your operating requirements ∀ Understand basic antenna operation and technical terms ∀ Deploy antennas safely ∀ Understand RF safety requirements

Topics Covered:	The course agenda includes:
	∀ Propagation
	∀ Antenna Basics for VHF, UHF and Regional HF
	∀ Antenna Patterns
	∀ Antenna Placement and Safety
	∀ RF Safety
	∀ Coax Cables
	∀ Coax Connectors
	∀ SWR
	∀ Interference
	   o Fundamental Overload
	   o Intermodulation Distortion
	∀ General Recommendations

Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 11-Sep-2018):** ∀ 1 slide per page (PDF - 1.7 MB) ∀ 2 slides per page (PDF - 1.5 MB) ∀ 3 slides per page (PDF - 890 KB) ∀ 4 slides per page (PDF - 1.1 MB) ∀ 6 slides per page (PDF - 874 KB) **IMPORTANT NOTE:** The Cross-band Repeating course is currently taught on the same day as this course.

Cross-Band Repeating	
Course Description and Materials	
Overview:	This course covers the advanced field communications technique of cross-band repeating.
Intended Audience:	Hams with experience in emergency communications who are interested in advanced field techniques such as setting up a cross-band repeater.
Prerequisites:	∀ Valid Technician class or higher Amateur Radio license ∀ Santa Clara County ARES/RACES training courses: o Field Operations - Type III, II **Note**: The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.
Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper ∀ HT and cross-band capable radios and manuals
Learning Objectives:	At the end of this course, students will be able to: ∀ Explain what cross-band repeating is ∀ Describe how cross-band repeating can be deployed ∀ Explain the legal aspects of cross-band repeating ∀ List the advantages of cross-band repeating ∀ Describe how the FCC addresses cross-band repeating ∀ Explain operation considerations ∀ Explain how to choose frequencies
Topics Covered:	The course agenda includes: ∀ Definition of cross-band repeating ∀ Cross band repeating modes ∀ Usage scenarios ∀ Set-up ∀ FCC requirements ∀ How to operate legally ∀ Operational considerations ∀ Frequency selection ∀ Radio make/model-specific settings
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 11-Sep-2018):** ∀ 1 slide per page (PDF - 2.3 MB) ∀ 2 slides per page (PDF - 2.0 MB) ∀ 3 slides per page (PDF - 200 KB) ∀ 4 slides per page (PDF - 214 KB) ∀ 6 slides per page (PDF - 1.7 MB) **Reference Materials:** ∀ 70cm Band Plan Chart (PDF 67KB) ∀ Cross-band Repeating on ICOM Products (PDF 3.7 MB) ∀ Cross-band Repeating on Kenwood TM-D710 (PDF 158 KB) ∀ Cross-band Repeating on Yaesu FTM350 (PDF 860KB) ∀ Cross-band Repeating on a Kenwood TMV7A (PDF 653 KB) ∀ Cross-band Repeating on a Yaesu FT8900 (PDF 1.3 MB) **IMPORTANT NOTE:** The Antenna Fundamentals course is currently taught on the same day as this course.

Field Operations - Type III, II	
Course Description and Materials	
Overview:	This course is designed to prepare individuals to perform field communicator duties as a fully independent operator.
Intended Audience:	Hams with interest in emergency communications who are interested in performing Field Communicator duties.

Prerequisites:	∀ Valid Technician class or higher Amateur Radio license
	∀ Santa Clara County ARES/RACES training courses:
	    o Introduction to Emergency Communications
	    o Fundamentals of Emergency Communications
	Note: The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.

Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper
Learning Objectives:	At the end of this course, students will be able to: ∀ Describe the role of the field operator ∀ Describe the MAC program and Field Ops qualifications ∀ Explain and perform basic safety procedures ∀ Properly execute the mobilization process ∀ Select the right equipment for a field assignments ∀ Properly complete ICS forms ∀ Operate a field station according to SCCo standards ∀ Understand and deal with problems in the field ∀ Properly execute the demobilization process

Topics Covered:	The course agenda includes:
	∀ What is Field Communications
	∀ The MAC Program
	∀ Safety
	∀ Example deployment
	    o Mobilization Process
	    o Equipment
	    o Incident Command System Forms
	    o Santa Clara County Performance Standards
	    o Dealing with problems
	    o Demobilization process

Scheduling Info:	http://www.scc-ares-races.org/activities

Course Materials:	**Classroom presentation (Revised 15-Jul-2018):**
	∀ 1 slides per page (PDF - 8.6 MB)
	∀ 1 slides per page with audio (PDF - 15.8 MB)
	∀ 2 slides per page (PDF - 2.3 MB)
	∀ 3 slides per page (PDF - 1.6 MB)
	∀ 4 slides per page (PDF - 2.4 MB)
	∀ 6 slides per page (PDF - 1.6 MB)
	
	Print out and bring the following to class:
	∀ Qyt 1: ICS-205 Communications Plan - Example (PDF)
	    o Using the instructions on the back, try to understand and be able to explain what each of the entries on the front page means
	∀ Qty 1: ICS-211A Check-In List (PDF)
	∀ Qty 1: ICS-214 Unit Activity Log (PDF)
	∀ Qty 1: ICS-309 Communications Log (PDF)
	∀ Qty 1: SCCo ARES/RACES Performance Standards and Best Practices (PDF)
	    o Review, especially relief briefing, starting on p12

Fundamentals of Emergency Communications	
Course Description and Materials	
Overview:	This is an introductory training course for hams who are new to Emergency Communications in Santa Clara County. It is the second in a series of courses offered to prepare for entrance into the Santa Clara County Mutual Aid Communicator Program.
Intended Audience:	New hams who may be interested in Emergency Communication or experienced hams who are new to Emergency Communications or new to Santa Clara County ARES/RACES procedures

Prerequisites:	∀ Valid Technician class or higher Amateur Radio license
	∀ Santa Clara County ARES/RACES training courses:
	    o Introduction to Emergency Communications (or approved equivalent) [instructor-led]
	    o ICS-214-SCCo Unit Activity Log [self-paced; about 20 minutes to complete]
	
	Note: The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.

Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper
Learning Objectives:	At the end of this course, students will be able to: ∀ Describe the Disaster Service Worker program, including their responsibilities as a participant ∀ Describe the purpose and appropriate usage of the main Santa Clara County ARES/RACES nets ∀ Describe and execute the proper procedures for mobilization, tracking, and demobilization, including the use of the Resource Net ∀ Submit a mike-mike report ∀ Properly complete an ICS 214 Log ∀ Properly complete and send/receive an ICS 213 Message form
Topics Covered:	The course agenda includes: ∀ The Disaster Service Worker program ∀ Santa Clara County Nets ∀ Mobilization, Tracking, Demobilization ∀ Fundamentals of Logging ∀ Fundamentals of Message Handling
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 11-Nov-2018):** ∀ 1 slide per page (PDF - 7.1 MB) ∀ 2 slides per page (PDF - 5.8 MB) ∀ 3 slides per page (PDF - 3.3 MB) ∀ 4 slides per page (PDF - 4.7 MB) ∀ 6 slides per page (PDF - 3.3 MB) **Complete the following self-paced training before coming to class:** ∀ ICS-214-SCCo Unit Activity Log (MP4 - 89 MB) [about 20 minutes to complete] **Print out and bring the following to class:** ∀ SCCo ARES/RACES Voice Frequency List ∀ SCCo ARES/RACES Performance Standards and Best Practices ∀ SCCo ARES/RACES Go Kit Checklist (MS-Word or PDF) ∀ ICS 205 SCCo Communications Plan (PDF 31 KB) [Final Draft out for review] ∀ ICS 213 SCCo Message Form (PDF - 45 KB) ∀ ICS 214 SCCo Unit Activity Log (PDF - 56 KB) ∀ SCCo EmComm Training Classes (PDF - 191 KB)

Introduction to Emergency Communications	
Course Description and Materials	
Overview:	This is an introductory training course for new hams who may be interested in Emergency Communications. It is the first in a series of courses offered to prepare for entrance into the Santa Clara County Mutual Aid Communicator Program.
Intended Audience:	New hams who may be interested in Emergency Communications (EmComm)
Prerequisites:	∀ Valid Technician class or higher Amateur Radio license
Length:	3.5 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper ∀ 2m/70cm dual-band HT radio (if you have one) with instruction manual. ∀ Students who do not yet have a radio will be provided one for use during the on-air exercise at the end of the course.
Learning Objectives:	At the end of this course, students will be able to: ∀ Explain VHF/UHF FM technology used in EmComm ∀ Use band plans, frequency lists, repeater directories ∀ Configure their radio for simplex and duplex operations ∀ Participated in a directed net ∀ Make direct contacts ∀ Describe the use of packet mode in EmComm ∀ Select and EmComm radio and accessories ∀ Understand local EmComm organizations ∀ Understand what to do next, after this class ∀ Make real on-the-air contacts with a Net Control operator
Topics Covered:	The course agenda includes: ∀ VHF/UHF simplex and duplex (repeaters: tone, offset) ∀ Voice operating techniques (with directed net exercises) ∀ Additional EmComm modes (packet, APRS, ATV, HF) ∀ Radios and accessories for EmComm ∀ EmComm organizations (county; SPECS/SVECS, cities) ∀ On-air exercise
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 06-Feb-2018):** ∀ 1 slide per page (PDF - 4.6 MB) ∀ 2 slides per page (PDF - 1.4 MB) ∀ 3 slides per page (PDF - 824 kB) ∀ 4 slides per page (PDF - 1.0 MB) ∀ 6 slides per page (PDF - 803 kB) **Additional useful information:** http://www.arrl.org/buying-your-first-radio

Message Passing

Course Description and Materials

Overview:	This class will review message passing skills and work up through tips and techniques for accurate and clear communications. It includes numerous exercises for practicing learned skills and techniques.
Intended Audience:	Hams who want to learn or improve their message passing skills.
Prerequisites:	∀ Valid Technician class or higher Amateur Radio license
Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper
Learning Objectives:	At the end of this course, students will be able to: ∀ Accurately and effectively pass message traffic

Topics Covered:	The course agenda includes:
	∀ Review of basic concepts
	∀ Message passing fundamentals
	   o Phonetics
	   o Rules of thumb
	   o Prowords
	∀ Message types
	   o Formal
	   o Agency specific
	   o Informal
	   o Unfamiliar forms
	∀ Problem solving
	∀ Exercises, exercises, exercises ...

Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 31-Jan-2018):** ∀ 1 slide per page (PDF - 3.5 MB) ∀ 2 slides per page (PDF - 1.7 MB) ∀ 3 slides per page (PDF - 721 kB) ∀ 4 slides per page (PDF - 1.1 MB) ∀ 6 slides per page (PDF - 696 kB) ∀ **Print out and bring the following to class:** ∀ 3 copies of ICS-213 Message Form (PDF - 45 kB) ∀ **Additional reference material to read (you don't need to print out and bring with you):** ∀ Informal Message Form (PDF or DOCX) ∀ ARRL NTS Chapter 1 - The ARRL Message Format (PDF - 97 KB) ∀ ARRL NTS Chapter 2 - Sending Messages on Voice (PDF - 187 KB) o Chapter 2 defines how to voice various types of message content, such as numbers, initials, addresses, etc. Recommended addition to your go kit.

Net Control - Type II (Formerly: Net Control in Disaster Communications - Level 2)	
Course Description and Materials	
Overview:	This course is covers advanced net control techniques, procedures and equipment for operating medium-to-high speed county nets.
Intended Audience:	Hams with experience in emergency communications who are interested in performing Net Control duties.

Prerequisites:	∀ Valid Technician class or higher Amateur Radio license
	∀ Santa Clara County ARES/RACES training courses:
	   o Net Control - Type III, Part A
	   o Net Control - Type III, Part B
	   o Antenna Fundamentals
	   o Cross-band Repeat
	
	Note: The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.

Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper

Learning Objectives:	At the end of this course, students will be able to:
	∀ Understand the role of an advanced net control operator (N2)
	∀ Understand the concepts, techniques, equipment and procedures required to operate:
	   o Two nets simultaneously
	   o County Resource Net Level 1-3
	   o County Message Net
	   o Other critical and/or high-traffic nets
	∀ Understand the basics of net planning

Topics Covered:	The course agenda includes:
	∀ The advanced net control qualification (Type II)
	∀ Working two nets simultaneously
	∀ Cross-band repeat for net control
	∀ Equipment for advanced net control
	∀ Advanced techniques
	∀ Procedures
	   o Resource Net Level 1 Operations
	   o Resource Net Level 2 Operations
	   o Resource Net Level 3 Operations
	   o Message Net Operations
	∀ Organizational models for net control
	∀ Planning for net control operations

Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 30-Apr-2018):** ∀ 1 slide per page (PDF - 4.6 MB) ∀ 2 slides per page (PDF - 2.6 MB) ∀ 3 slides per page (PDF - 826 kB) ∀ 4 slides per page (PDF - 1.5 MB) ∀ 6 slides per page (PDF - 805 KB) **Print out and bring the following to class::** ∀ ICS 205 Communications Plan (qty 1) ∀ Resource Net Dispatch Template (qty 1)

Net Control - Type III, Part A	
Course Description and Materials	
Overview:	This course is part A of a two-part course designed to prepare individuals to perform net control duties as a fully independent operator for low to medium speed county nets and city or event nets.
Intended Audience:	Hams who are interested in performing Net Control duties.

Prerequisites:	∀ Valid Technician class or higher Amateur Radio license
	∀ Santa Clara County ARES/RACES training courses:
	    o Introduction to Emergency Communications
	    o Fundamentals of Emergency Communications
	    o Field Operations - Type III
	    o Message Passing
	
	Note: The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.

Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper
Learning Objectives:	At the end of this course, students will be able to: ∀ Describe the Net Control Type III MAC qualification ∀ Describe the purpose and usage of each of the main Santa Clara County nets ∀ Describe the key attributes of a net control operator ∀ Perform proper record keeping and logging ∀ Properly start up a net ∀ Properly collect damage reports ∀ Properly hand off damage report summaries ∀ Describe general procedures to properly run a net
Topics Covered:	The course agenda includes: ∀ Net Control Type III MAC Qualification ∀ Santa Clara County Nets ∀ NCO Attributes and techniques ∀ Record keeping and logging ∀ Starting a net ∀ Handling damage reports ∀ Operating a net The course includes several interactive exercises.
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 27-Feb-2018):** ∀ 1 slide per page (PDF - 4.5 MB) ∀ 2 slides per page (PDF - 1.8 MB) ∀ 3 slides per page (PDF - 1.0 MB) ∀ 4 slides per page (PDF - 1.3 MB) ∀ 6 slides per page (PDF - 1.0 MB) ∀ **Print out and bring the following to class:** ∀ Qty 1: ICS-214 Unit Activity Log (PDF - 26 KB) ∀ Qty 1: ICS-309 Communications Log (PDF - 79 KB) ∀ Qty 1: Modified Mercalli Earthquake Reporting Summary Form (PDF - 85 KB) Be sure to print front and back of the above forms.

Net Control - Type III, Part B	
Course Description and Materials	
Overview:	This course is part B of a two part course designed to prepare individuals to perform net control duties as a fully independent operator for low to medium speed county nets and city or event nets.
Intended Audience:	Hams who are interested in performing Net Control duties.
Prerequisites:	∀ Valid Technician class or higher Amateur Radio license ∀ Santa Clara County ARES/RACES training course: o Net Control - Type III, Part A **Note:** The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.
Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper
Learning Objectives:	At the end of this course, students will be able to: ∀ Describe how to deal with net control challenges ∀ Properly work with a scribe ∀ Describe the equipment options for net control ∀ Properly perform resource tracking ∀ Properly manage a resource net for an event ∀ Properly hand off a net ∀ Properly close a net
Topics Covered:	The course agenda includes: ∀ Dealing with challenges ∀ Working with a scribe ∀ Equipment for net control ∀ Resource tracking ∀ Resource Net for an Event ∀ Handing off a net ∀ Closing a net The course includes several interactive exercises.
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 02-Apr-2018):** ∀ 1 slide per page (PDF - 3.8 MB) ∀ 2 slides per page (PDF - 1.7 MB) ∀ 3 slides per page (PDF - 936 kB) ∀ 4 slides per page (PDF - 1.2 MB) ∀ 6 slides per page (PDF - 916 kB) **Print out and bring the following to class:** ∀ Qty 2: ICS-309 Communications Log (PDF - 79 KB) ∀ Qty 1: Resource Net Dispatch Template (PDF - 45 KB) ∀ Qty 2: Resource Net Travel Tracking Form (PDF - 85 KB) **Other resources:** ∀ Recording: Resource Net Travel Tracking Classroom Exercise (MP3 - 17.3 MB) o Right-click and select "Save Link As ..." or "Save Target As ..." (or similar) to save the file to your PC

Packet Operations - Type II (Adv / Troubleshooting)	
Course Description and Materials	
Overview:	This course covers advanced packet usage within the Santa Clara County packet network.
Intended Audience:	Hams with training and experience in Santa Clara County packet who are interested in advanced operations.
Prerequisites:	∀ Valid Technician Class or higher Amateur Radio license ∀ Santa Clara County ARES/RACES training courses: o Packet Operations - Type III, Part A o Packet Operations - Type III, Part B **Note:** The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.
Length:	3 hours
Students should bring:	∀ Copy of all course materials (see below) ∀ Pen/pencil and pad of paper ∀ Personal packet station (if you have one) to use in the classroom: o Install PuTTY terminal emulator prior to class (http://www.chiark.greenend.org.uk/~sgtatham/putty/) o Install the latest SCCo Packet installer and verify operation o Please use a dummy load or a small antenna and extra low power o 2m, 220 and 440 access will be available. 220 is usually the least congested; 2m is usually the most congested o Battery - AC power is limited due to number of people in the class. If at all possible, please bring sufficient battery power to run your station at least one hour without AC power.
Learning Objectives:	At the end of this course, students will be able to: ∀ Understand the setup and operation of the county EOC radio room packet station ∀ Set up and use a terminal program to access a BBS ∀ Without Outpost: o Connect to a JNOS BBS o Send and receive plan text messages via BBS commands ∀ Send and receive PacFORMS messages via BBS commands
Topics Covered:	The course agenda includes: ∀ Review results from Packet Operations Type III-B classroom exercise ∀ County EOC packet station setup and operations ∀ Operating procedures without Outpost Hands-on exercises
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 31-Oct-2018):** ∀ 1 slides per page (PDF - 3.6 MB) ∀ 2 slides per page (PDF - 2.8 MB) ∀ 3 slides per page (PDF - 2.1 MB) ∀ 4 slides per page (PDF - 2.5 MB) ∀ 6 slides per page (PDF - 2.1 MB) **Also, download and bring a soft copy of the following on your packet computer (for easier cut-and-paste of TNC parameters):** ∀ SCCo Standard TNC Parameter Settings **Also: read, print out and bring the following to class:** ∀ Packet Notice: SCCo Packet Subject Line Packet Notice: SCCo Packet Check-In/Out

Packet Operations - Type III, Part A	
Course Description and Materials	
Overview:	This is the first course in a two-part series designed to prepare an individual to assemble and operate and existing packet station. Part A (this course) focuses on the individual packet station. It covers the components of a baseline station and how to assemble it and send a message to yourself. Part B is a hands-on class focused on configuring and operating the baseline packet station.
Intended Audience:	Hams with experience in emergency communications who are interested in performing Packet Operator duties.
Prerequisites:	∀ Valid Technician Class or higher Amateur Radio license ∀ Santa Clara County ARES/RACES training course: 　o Field Operations - Type III **Note:** The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.
Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper ∀ No packet station is required
Learning Objectives:	At the end of this course, students will be able to: ∀ Describe the MAC Packet Operator qualifications ∀ Describe the purpose and use of packet communications ∀ Describe the Santa Clara County BBS network ∀ Describe the components of the baseline packet station ∀ Describe the Outpost and PacFORMS software and their basic use ∀ Assemble, setup, and verify operation of the baseline packet station
Topics Covered:	The course agenda includes: ∀ MAC Packet Operator qualifications ∀ Packet Network Overview 　o What is Packet? 　o Why do we use it? ∀ Packet Network Components 　o SCCo BBSs 　o Other Networks 　o Radio frequencies 　o Antennas 　o Radios 　o TNCs 　o PCs ∀ Baseline Packet Station: hardware and software ∀ Accessing the Network ∀ Standard Workflow ∀ Homework!
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 04-Sep-2018):** ∀ 1 slide per page (PDF - 4.9 MB) ∀ 2 slides per page (PDF - 3.1 MB) ∀ 3 slides per page (PDF - 1.4 MB) ∀ 4 slides per page (PDF - 1.8 MB) ∀ 6 slides per page (PDF - 1.4 MB) **Before class, thoroughly review and familiarize yourself with the contents of the following web pages:** ∀ Packet BBS Service ∀ Network Access Using AX.25 over VHF Amateur Radio **Also, print out and bring a copy of the following web page to class:** ∀ Packet Frequencies and BBS Listings **Also, download and (optionally) print out a copy of the Packet Exercises workbook:** ∀ Packet Exercises Workbook - 09/24/2018

Packet Operations - Type III, Part B	
Course Description and Materials	
Overview:	This is the second course in a two-part series designed to prepare an individual to assemble and operate and existing packet station. Part A covers the overall county packet network architecture and the various components of a standard packet station. Part B is a hands-on class focused on configuring and using the standard packet station.
Intended Audience:	Hams with experience in emergency communications who are interested in performing Packet Operator duties.
Prerequisites:	∀ Valid Technician Class or higher Amateur Radio license ∀ Santa Clara County ARES/RACES training course: o Packet Operations - Type III, Part A ∀ Perform the pre-class homework defined below **Note**: The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.
Length:	3 hours

Pre-class Homework:	Students are expected to perform the following pre-class homework:
	∀ Join the packet discussion group
	    o Use the discussion group to get help with any of the following homework
	∀ Read and understand the following web pages:
	    o Packet Frequencies and BBS Listings
	    o Packet Network Addressing
	∀ Install Outpost and PacFORMS using the latest SCCo Packet Client Software Installer.
	    o Review the Setup and Tools menus and dialog boxes
	    o Review the Outpost User Guide (on the Outpost web site)
	∀ If you have a packet station:
	    o Practice connecting to your primary and secondary BBS and sending yourself a message at each
	    o Download, save, read and understand the notices in the XSCPERM area
	    o Check in to the Monday or Tuesday packet net
	∀ Complete the Packet Exercises Workbook
	    o These exercises cover a lot of operational details of Outpost.
	    o Some of those details involve actually sending a receiving a message.
	∀ But even if you don't have a radio and TNC, you can complete most of the exercises except for the actual Send/Receive of the message.

Students should bring:	∀ Copy of course materials (see below)
	∀ Pen/pencil and pad of paper
	∀ A copy of the "Packet Frequencies and BBS Listings" web page for use during the class participation segments of the class.
	∀ Personal packet station (if you have one) to use in the classroom
	    o Have the latest SCCo Packet installer loaded and working
	    o 2m, 220 and 440 access will be available.
	    o Please use a dummy load or a small antenna and extra low power
	    o With so many people in the room, the VHF/UHF radios may be overwhelmed with interference. In that case, you may wish to switch to WiFi. So, a WiFi-capable laptop is best. Be sure you know how to select and connect to a WiFi network.
	∀ If you don't have a packet station, you may bring a WiFi-capable laptop, with Windows 7 or later
	    o Have the latest SCCo Packet installer loaded and working
	    o Know how to select and connect to a WiFi network
	∀ Battery - AC power is limited due to number of people in the class. If at all possible, please bring sufficient battery power to run your station at least one hour without AC power.

Learning Objectives:	At the end of this course, students will know how to:
	   ∀ Verify the setup of an existing packet station
	   ∀ Select a BBS and connect to it
	   ∀ Create a message with Outpost and PacFORMS
	        o Properly format the subject line
	        o Send a proper check-in message
	   ∀ Properly address a messages
	        o To another SCCo packet user
	        o To someone on an external network
	        o From an external network to an SCCo packet user
	   ∀ Retrieve and send SCCo notices
	   ∀ Conduct packet message operations

Topics Covered:	The course agenda includes:
	   ∀ Diagnosing Problems .
	   ∀ Selecting a BBS
	   ∀ Connecting to Your Mailbox
	   ∀ Creating Messages
	   ∀ Addressing Messages
	   ∀ Notices and Bulletins
	   ∀ Packet Operations
	   ∀ Exercises

Scheduling Info:	http://www.scc-ares-races.org/activities

Course Materials:	**Classroom presentation (Revised 22-Oct-2018):**
	   ∀ 1 slide per page (PDF - 4.2 MB)
	   ∀ 2 slides per page (PDF - 3.3 MB)
	   ∀ 3 slides per page (PDF - 2.7 MB)
	   ∀ 4 slides per page (PDF - 3.0 MB)
	   ∀ 6 slides per page (PDF - 2.7 MB)
	
	Print out and bring the following to class:
	   ∀ How to Configure and Use Telnet Access for Outpost Training
	   ∀ Web page: Packet Frequencies and BBS Listings
	   ∀ Web page: Packet Network Addressing
	   ∀ Packet Bulletin: SCCo Packet Frequencies
	   ∀ Packet Bulletin: SCCo Packet Tactical Calls
	   ∀ Packet Bulletin: SCCo Packet Subject Line

Shadowing - Type III	
Course Description and Materials	
Overview:	This is the classroom portion of the Shadowing class. The practical portion of the class is performed at a local event.
Intended Audience:	Hams with experience in emergency communications who are interested in performing Shadow Communicator duties.
Prerequisites:	∀ Valid Technician Class or higher Amateur Radio License ∀ Santa Clara County ARES/RACES training course: o Field Operations - Type III, II **Note:** The above prerequisites are not strictly enforced. But in order to get the most out of this course, you should have previously attended the above courses. If you have not yet attended one or more of the prerequisites, you should carefully review the course materials for the missed prerequisites prior to attending this course. Then, be sure to attend any missed prerequisites at your earliest opportunity.
Length:	3 hours
Students should bring:	∀ Copy of course materials (see below) ∀ Pen/pencil and pad of paper

Learning Objectives:	At the end of this course, students will be able to:
	∀ Explain the role of the Shadow Communicator
	∀ Explain the importance of the role
	∀ Explain the proper equipment to use
	∀ Deal with various problems faced by shadow communicators
	∀ Function as a fully independent shadow communictor to
	   o Handle personal safety
	   o Properly and professionally interact with the principal
	   o Effectively and efficiently pass message traffic at a low level
	   o Handle and pass emergency traffic
	   o Properly document and log all activities
	∀ Understand the importance of intimately knowing how to program your radio

Topics Covered:	The course agenda includes: ∀ Roles and responsibilities ∀ Expectations of your principal ∀ Capabilities and services a shadow provides ∀ Types of message traffic handled ∀ Proper loggin, monitoring, and message passing ∀ Proper shadowing techniques; the DOs and DON'Ts ∀ Dealing with problems encountered while shadowing ∀ Personal safety while shadowing
Scheduling Info:	http://www.scc-ares-races.org/activities
Course Materials:	**Classroom presentation (Revised 30-Jul-2018):** ∀ 1 slide per page (PDF - 2.7 MB) ∀ 2 slides per page (PDF - 1.0 MB) ∀ 3 slides per page (PDF - 710 KB) ∀ 4 slides per page (PDF - 962 KB) ∀ 6 slides per page (PDF - 697 KB) **Reference Material:** ∀ Shadowing First Five Minutes Checklist (03-Aug-2017) ∀ Radio Chest Pack Information (30-Jul-2018) ∀ Custom Clipboard pictures (01-Jan-2015) ∀ Custom Clipboard template (01-Jan-2015)

Attachment B
PROPOSED RACES/ARES/ACS TRAINING SCHEDULE

Santa Clara County ARES / RACES / ACS 2018 Training Program Schedule			
Month/Year	Location	Course and Objectives	Supervisor
12/08/18 9:00 AM	55 W Younger, Sheriff's Office	2018 End of Year Summary County Training	2-3 Qualified MAC Instructors
01/05/19 9:00 AM	Sunnyvale Public Safety HQ	Field Operations Type III, Part A County Training	1 Qualified MAC Instructor
02/02/19 9:00 AM	Sunnyvale Public Safety HQ	Net Control - Type III, Part A County Training	1 Qualified MAC Instructor
02/09/19 9:00 AM	Sunnyvale Public Safety HQ	Field Operations Type III, Part B & Type II County Training	1 Qualified MAC Instructor
02/09/19 9:00 AM	Cupertino City Hall/EOC	Introduction to Emergency Communications County Training	1 Qualified MAC Instructor
02/23/19 9:00 AM	County and City EOC	ARES/RACES Communications Drill County Drill	Designated City and County RACES Representatives
03/02/19 9:00 AM	Sunnyvale Public Safety HQ	Net Control - Type III, Part B County Training	1 Qualified MAC Instructor
04/06/19 9:00 AM	Sunnyvale Public Safety HQ	Net Control - Type II County Training	1 Qualified MAC Instructor
05/04/19 9:00 AM	Sunnyvale Public Safety HQ	Message Passing – Tabletop County Training	1 Qualified MAC Instructor
05/18/19 9:00 AM	County and City EOC	ARES/RACES Communications Drill County Drill	Designated City and County RACES Representatives
06/01/19 9:00 AM	Sunnyvale Public Safety HQ	Event Planning Table Top County Training	1 Qualified MAC Instructor
06/12/19 6:00 PM	Sunnyvale Public Safety HQ	Introduction to Emergency Communications County Training	1 Qualified MAC Instructor
07/10/19 6:00 PM	Sunnyvale Public Safety HQ	Fundamentals of Emergency Communications County Training	1 Qualified MAC Instructor
07/13/19 9:00 AM	Sunnyvale Public Safety HQ	Field Operations Type III, Part A County Training	1 Qualified MAC Instructor
07/20/19 9:00 AM	Sunnyvale Public Safety HQ	Field Operations Type III, Part B County Training	1 Qualified MAC Instructor
08/03/19 9:00 AM	Sunnyvale Public Safety HQ	Shadowing - Type III County Training	1 Qualified MAC Instructor

Santa Clara County ARES / RACES / ACS 2018 Training Program Schedule			
Month/Year	Location	Course and Objectives	Supervisor
08/10/19 8:30 AM	Cuesta Park, Mountain View	RDF Search and Locate Mini-drill County Drill	1-2 Qualified MAC Instructors
08/17/19 9:00 AM	County and City EOC	ARES/RACES Communications Drill County Drill	Designated City and County RACES Representatives
09/07/19 9:00 AM	Sunnyvale Public Safety HQ	Packet Operations Type III, Part A County Training	1 Qualified MAC Instructor
09/21/19 9:00 AM	Sunnyvale Public Safety HQ	Cross-Band Repeating / Antenna Fundamentals County Training	1 Qualified MAC Instructor
10/05/19 9:00 AM	Sunnyvale Public Safety HQ	Packet Operations Type III, Part B County Training	1 Qualified MAC Instructor
11/02/19 9:00 AM	Sunnyvale Public Safety HQ	Packet Operations - Type II - Adv / Troubleshooting County Training	1 Qualified MAC Instructor
11/16/19 9:00 AM	Sunnyvale Public Safety HQ	Message Passing - Tabletop County Training	1 Qualified MAC Instructor
12/14/19 9:00 AM	55 W Younger, Sheriff's Office	2018 End of Year Summary County Training	2-3 Qualified MAC Instructors